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<110> RHODES, Simon J.
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      PARKER, Gretchen E.
      PRICE, Jeffrey R.
      SHOWALTER, Aaron D.
      SLOOP, Kyle W.
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35 40 45

Pro Leu Ala Glu Arg Cys Phe Ser Arg Gly Glu Ser Leu Tyr Cys Lys
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Asp Asp Phe Phe Lys Arg Phe Gly Thr Lys Cys Ala Ala Cys Gln Leu 65 70 75 80

Gly Ile Pro Pro Thr Gln Val Val Arg Arg Ala Gln Asp Phe Val Tyr 85 90 95

His Leu His Cys Phe Ala Cys Val Val Cys Lys Arg Gln Leu Ala Thr 100 105 110

Gly Asp Glu Phe Tyr Leu Met Glu Asp Ser Arg Leu Val Cys Lys Ala 115 120 125

Asp Tyr Glu Thr Ala Lys Gln Arg Glu Ala Glu Ala Thr Ala Lys Arg 130 135 140

Pro Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr Leu Lys Ser Ala 145 150 155 160

Tyr Asn Thr Ser Pro Lys Pro Ala Arg His Val Arg Glu Gln Leu Ser 165 170 175

Ser Glu Thr Gly Leu Asp Met Arg Val Val Gln Val Trp Phe Gln Asn 180 185 190

Arg Arg Ala Lys Glu Lys Arg Leu Lys Lys Asp Ala Gly Arg Gln Arg 195 200 205

Trp Gly Gln Tyr Phe Arg Asn Met Lys Arg Ala Arg Gly Gly Ser Lys 210 215 220

Ser Asp Lys Asp Ser Val Gln Glu Glu Gly Gln Asp Ser Asp Ala Glu 225 230 235 240 Val Ser Phe Thr Asp Glu Pro Ser Met Ala Glu Met Gly Pro Ala Asn 245 250 255

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Ser Gly Ala Pro Gly Ser Phe Pro Leu Glu His Gly Gly Leu Ala Gly
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Ser Ser Leu Val Tyr Pro Glu Ala Gly Leu Gly Leu Val Pro Ala Gly 325 330 335

Pro Pro Gly Gly Pro Pro Pro Met Arg Val Leu Ala Gly Asn Gly Pro 340 345 350

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Ala Leu Asp Arg His Trp His Ser Lys Cys Leu Lys Cys Ser Asp Cys 50 55 60

His Val Pro Leu Ala Glu Arg Cys Phe Ser Arg Gly Glu Ser Val Tyr
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Cys Lys Asp Asp Phe Phe Lys Arg Phe Gly Thr Lys Cys Ala Ala Cys 85 90 95

Gln Leu Gly Ile Pro Pro Thr Gln Val Val Arg Arg Ala Gln Asp Phe 100 105 110

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Lys Ala Asp Tyr Glu Thr Ala Lys Gln Arg Glu Ala Glu Ala Thr Ala 145 150 155 160

Lys Arg Pro Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr Leu Lys 165 170 175

Ser Ala Tyr Asn Thr Ser Pro Lys Pro Ala Arg His Val Arg Glu Gln 180 185 190

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195 200 205

Asn Arg Arg Ala Lys Glu Lys Arg Leu Lys Lys Asp Ala Gly Arg Gln 210 215 220

Arg Trp Gly Gln Tyr Phe Arg Asn Met Lys Arg Ser Arg Gly Ser Ser 225 230 235 240

Lys Ser Asp Lys Asp Ser Ile Gln Glu Gly Gln Asp Ser Asp Ala Glu 245 250 255

Val Ser Phe Thr Asp Glu Pro Ser Met Ala Asp Met Gly Pro Ala Asn 260 265 270

Gly Leu Tyr Ser Ser Leu Gly Glu Pro Ala Pro Ala Leu Gly Arg Pro 275 280 285

Val Gly Gly Leu Gly Ser Phe Thr Leu Asp His Gly Gly Leu Thr Gly 290 295 300

Pro Glu Gln Tyr Arg Glu Leu Arg Pro Gly Ser Pro Tyr Gly Ile Pro 305 310 315 320

Pro Ser Pro Ala Ala Pro Gln Ser Leu Pro Gly Pro Gln Pro Leu Leu 325 330 335

Ser Ser Leu Val Tyr Pro Asp Thr Asn Leu Ser Leu Val Pro Ser Gly 340 345 350

Pro Pro Gly Gly Pro Pro Pro Met Arg Val Leu Ala Gly Asn Gly Pro 355 360 365

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Gln His Ile Val Asp Arg Phe Ile Leu Lys Val Leu Asp Arg His Trp
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His Ser Lys Cys Leu Lys Cys Ser Asp Cys Gln Thr Gln Leu Ala Glu 50 55 60

Lys Cys Phe Ser Arg Gly Asp Gly Val Tyr Cys Lys Glu Asp Phe Phe 65 70 75 80

Lys Arg Phe Gly Thr Lys Cys Ala Ala Cys Gln Gln Gly Ile Pro Pro 85 90 95

Thr Gln Val Val Arg Arg Ala Gln Asp Phe Val Tyr His Leu His Cys 100 105 110

Phe Ala Cys Ile Val Cys Lys Arg Gln Leu Ala Thr Gly Asp Glu Phe
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Tyr Leu Met Glu Asp Ser Arg Leu Val Cys Lys Ala Asp Tyr Glu Thr 130 135 140

Ala Lys Gln Arg Glu Ala Glu Ser Thr Ala Lys Arg Pro Arg Thr Thr 145 150 155 160

Ile Thr Ala Lys Gln Leu Glu Thr Leu Lys Asn Ala Tyr Asn Asn Ser 165 170 175

Pro Lys Pro Ala Arg His Val Arg Glu Gln Leu Ser Ser Glu Thr Gly
180 185 190

Leu Asp Met Arg Val Val Gln Val Trp Phe Gln Asn Arg Arg Ala Lys 195 200 205

Glu Lys Arg Leu Lys Lys Asp Ala Gly Arg Gln Arg Trp Gly Gln Tyr 210 215 220

Phe Arg Asn Met Lys Arg Ser Arg Gly Thr Ser Lys Ser Asp Lys Asp 225 230 235 240

Ser Ile Gln Glu Glu Gly Pro Asp Ser Asp Ala Glu Val Ser Phe Thr 245 250 255

Asp Glu Pro Ser Met Ser Glu Met Ser His Ser Asn Gly Ile Tyr Ser 260 265 270

Asn Leu Ser Glu Ala Ser Pro Ala Leu Gly Arg Gln Ala Gly Thr Asn 275 280 285

Gly Gly Phe Ser Leu Asp His Ser Gly Ile Pro Ala Gln Asp Gln Tyr

290 295 300

His Asp Leu Arg Ser Asn Ser Pro Tyr Gly Ile Pro Gln Ser Pro Ala 305 310 315 320

Ser Leu Gln Ala Leu Pro Gly His Gln Pro Leu Ile Ser Ser Leu Val 325 330 335

Tyr Pro Asp Ser Gly Leu Gly Ile Met Gly Gln Gly Gln Gly Val
340 345 350

Pro Gln Ser Met Arg Val Leu Ala Gly Asn Gly Pro Ser Ser Asp Leu 355 360 365

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Ser Trp Leu Asp Glu Val Asp His Ala Gln Phe 385 390 395

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<213> Xenopus laevis

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Gln His Ile Val Asp Arg Phe Ile Leu Lys Val Leu Asp Arg His Trp 35 40 45

His Ser Lys Cys Leu Lys Cys Asn Asp Cys Gln Ile Gln Leu Ala Glu 50 55 60

Lys Cys Phe Ser Arg Gly Asp Ser Val Tyr Cys Lys Asp Asp Phe Phe 65 70 75 80

Lys Arg Phe Gly Thr Lys Cys Ala Ala Cys Gln Gln Gly Ile Pro Pro 85 90 95

Thr Gln Val Val Arg Arg Ala Gln Glu Phe Val Tyr His Leu His Cys 100 105 110

Phe Ala Cys Ile Val Cys Lys Arg Gln Leu Ala Thr Gly Asp Glu Phe
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Tyr Leu Met Glu Asp Ser Arg Leu Val Cys Lys Ala Asp Tyr Glu Thr 130 135 140

Ala Lys Gln Arg Glu Ala Glu Ser Thr Ala Lys Arg Pro Arg Thr Thr 145 150 155 160 Ile Thr Ala Lys Gln Leu Glu Thr Leu Lys Asn Ala Tyr Asn Asn Ser 165 170 175

Pro Lys Pro Ala Arg His Val Arg Glu Gln Leu Ser Ser Glu Thr Gly
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Leu Asp Met Arg Val Val Gln Val Trp Phe Gln Asn Arg Arg Ala Lys
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Glu Lys Arg Leu Lys Lys Asp Ala Gly Arg Gln Arg Trp Gly Gln Tyr 210 215 220

Phe Arg Asn Met Lys Arg Ser Arg Gly Asn Ser Lys Ser Asp Lys Asp 225 230 235 240

Ser Ile Gln Glu Glu Gly Pro Asp Ser Asp Ala Glu Val Ser Phe Thr 245 250 255

Asp Glu Pro Ser Met Ser Glu Met Asn His Ser Asn Gly Ile Tyr Asn 260 265 270

Ser Leu Asn Asp Ser Ser Pro Val Leu Gly Arg Gln Ala Gly Ser Asn 275 280 285

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Phe Pro Asp Thr Gly Leu Gly Ile Ile Gly Gln Gly Gln Gly Val 340 345 350

Ala Pro Thr Met Arg Val Ile Gly Val Asn Gly Pro Ser Ser Asp Leu
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<212> PRT

<213> Danio rerio

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Gln His Ile Val Asp Arg Phe Ile Leu Lys Val Leu Asp Arg His Trp
35 40 45

His Ser Lys Cys Leu Lys Cys Ser Asp Cys Gln Ser Gln Leu Ala Asp
50 55 60

Lys Cys Phe Ser Arg Gly Asp Ser Val Tyr Cys Lys Asp Asp Phe Phe 65 70 75 80

Lys Arg Phe Gly Thr Lys Cys Ala Ala Cys Gln Gln Gly Ile Pro Pro 85 90 95

Thr Gln Val Val Arg Arg Ala Gln Asp Phe Val Tyr His Leu His Cys
100 105 110

Phe Ala Cys Ile Val Cys Lys Arg Gln Leu Ala Thr Gly Asp Glu Tyr 115 120 125

Tyr Leu Met Glu Asp Ser Arg Leu Val Cys Lys Ala Asp Tyr Glu Thr 130 135 140

Ala Lys Gln Arg Glu Ala Asp Ser Thr Ala Lys Arg Pro Arg Thr Thr 145 150 155 160

Ile Thr Ala Lys Gln Leu Glu Thr Leu Lys Asn Ala Tyr Asn Asn Ser 165 170 175

Pro Lys Pro Ala Arg His Val Arg Glu Gln Leu Ser Thr Glu Thr Gly
180 185 190

Leu Asp Met Arg Val Val Gln Val Trp Phe Gln Asn Arg Arg Ala Lys
195 200 205

Glu Lys Arg Leu Lys Lys Asp Ala Gly Arg Gln Arg Trp Gly Gln Tyr 210 215 220

Phe Arg Asn Met Lys Arg Ser Arg Gly Thr Ser Lys Ser Asp Lys Asp 225 230 235 240

Ser Thr Gln Glu Asp Gly Met Asp Ser Asp Ala Glu Val Ser Phe Thr 245 250 255

Asp Glu Pro Pro Met Ser Asp Leu Gly His Ser Asn Gly Ile Tyr Ser 260 265 270

Ser Leu Ser Glu Ser Ser Pro Ala Leu Ser Arg Gln Gly Gly Asn His
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Pro Ala Phe Pro Leu Glu His Gly Ala Ile Ile Pro Ser Gln Glu Pro 290 295 300

Tyr His Asp Ile Gln Ala Ser Ser Pro Tyr Ser Leu Pro Gln Ser Pro 305 310 315 320

Gly Pro Leu Gln Pro Leu Pro Arg His Gln Pro Leu Ile Ser Ser Leu 325 330 335

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<213> Homo sapiens

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Arg His Trp His Ser Lys Cys Leu Lys Cys Ser Asp Cys His Thr Pro 50 55 60

Leu Ala Glu Arg Cys Phe Ser Arg Gly Glu Ser Val Tyr Cys Lys Asp
65 70 75 80

Asp Phe Phe Lys Arg Phe Gly Thr Lys Cys Ala Ala Cys Gln Leu Gly 85 90 95

Ile Pro Pro Thr Gln Val Val Arg Arg Ala Gln Asp Phe Val Tyr His
100 105 110

Leu His Cys Phe Ala Cys Val Val Cys Lys Arg Gln Leu Ala Thr Gly 115 120 125

Asp Glu Phe Tyr Leu Met Glu Asp Ser Arg Leu Val Cys Lys Ala Asp 130 135 140

Tyr Glu Thr Ala Lys Gln Arg Glu Ala Glu Ala Thr Ala Lys Arg Pro 145 150 155 160

Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr Leu Lys Ser Ala Tyr 165 170 175

Asn Thr Ser Pro Lys Pro Ala Arg His Val Arg Glu Gln Leu Ser Ser 180 185 190

Glu Thr Gly Leu Asp Met Arg Val Val Gln Val Trp Phe Gln Asn Arg 195 200 205

Arg Ala Lys Glu Lys Arg Leu Lys Lys Asp Ala Gly Arg Gln Arg Trp

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Asp Lys Asp Ser Val Gln Glu Gly Gln Asp Ser Asp Ala Glu Val Ser 245 250 255

Phe Pro Asp Glu Pro Ser Leu Ala Glu Met Gly Pro Ala Asn Gly Leu 260 265 270

Tyr Gly Ser Leu Gly Glu Pro Thr Gln Ala Leu Gly Arg Pro Ser Gly
275 280 285

Ala Leu Gly Asn Phe Ser Leu Glu His Gly Gly Leu Ala Gly Pro Glu 290 295 300

Gln Tyr Arg Glu Leu Arg Pro Gly Ser Pro Tyr Gly Val Pro Pro Ser 305 310 315 320

Pro Ala Ala Pro Gln Ser Leu Pro Gly Pro Gln Pro Leu Leu Ser Ser 325 330 335

Leu Val Tyr Pro Asp Thr Ser Leu Gly Leu Val Pro Ser Gly Ala Pro 340 345 350

Gly Gly Pro Pro Met Arg Val Leu Ala Gly Asn Gly Pro Ser Ser 355 360 365

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Ile Pro Leu Cys Ala Gly Cys Asp Gln His Ile Leu Asp Arg Phe Ile
Leu Lys Ala Leu Asp Arg His Trp His Ser Lys Cys Leu Lys Cys Ser
Asp Cys His Thr Pro Leu Ala Glu Arg Cys Phe Ser Arg Gly Glu Ser
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105 Asp Phe Val Tyr His Leu His Cys Phe Ala Cys Val Val Cys Lys Arg 115 120 Gln Leu Ala Thr Gly Asp Glu Phe Tyr Leu Met Glu Asp Ser Arg Leu

Ala Cys Gln Leu Gly Ile Pro Pro Thr Gln Val Val Arg Arg Ala Gln

100

135

Val Cys Lys Ala Asp Tyr Glu Thr Ala Lys Gln Arg Glu Ala Glu Ala 145 150 155 160

Thr Ala Lys Arg Pro Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr
165 170 175

Leu Lys Ser Ala Tyr Asn Thr Ser Pro Lys Pro Ala Arg His Val Arg 180 185 190

Glu Gln Leu Ser Ser Glu Thr Gly Leu Asp Met Arg Val Val Gln Val 195 200 205

Trp Phe Gln Asn Arg Arg Ala Lys Glu Lys Arg Leu Lys Lys Asp Ala 210 215 220

Gly Arg Gln Arg Trp Gly Gln Tyr Phe Arg Asn Met Lys Arg Ser Arg 225 230 235 240

Gly Gly Ser Lys Ser Asp Lys Asp Ser Val Gln Glu Gly Gln Asp Ser 245 250 255

Asp Ala Glu Val Ser Phe Pro Asp Glu Pro Ser Leu Ala Glu Met Gly 260 265 270

Pro Ala Asn Gly Leu Tyr Gly Ser Leu Gly Glu Pro Thr Gln Ala Leu 275 280 285

Gly Arg Pro Ser Gly Ala Leu Gly Asn Phe Ser Leu Glu His Gly Gly 290 295 . 300

Leu Ala Gly Pro Glu Gln Tyr Arg Glu Leu Arg Pro Gly Ser Pro Tyr 305 310 315 320

Gly Val Pro Pro Ser Pro Ala Ala Pro Gln Ser Leu Pro Gly Pro Gln 325 330 335

Pro Leu Leu Ser Ser Leu Val Tyr Pro Asp Thr Ser Leu Gly Leu Val 340 345 350

Pro Ser Gly Ala Pro Gly Gly Pro Pro Pro Met Arg Val Leu Ala Gly 355 360 365

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Gln Phe

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<211> 1658

<212> DNA

<213> Sus scrofa

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Ala Leu Asp Arg His Trp His Ser Lys Cys Leu Lys Cys Ser Asp Cys
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                         55
His Thr Pro Leu Ala Glu Arg Cys Phe Ser Arg Gly Glu Ser Leu Tyr
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                                         75
Cys Lys Asp Asp Phe Phe Lys Arg Phe Gly Thr Lys Cys Ala Ala Cys
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1658

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- Lys Ala Asp Tyr Glu Thr Ala Lys Gln Arg Glu Ala Glu Ala Thr Ala 145 150 155 160
- Lys Arg Pro Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr Leu Lys 165 170 175
- Ser Ala Tyr Asn Thr Ser Pro Lys Pro Ala Arg His Val Arg Glu Gln 180 185 190
- Leu Ser Ser Glu Thr Gly Leu Asp Met Arg Val Val Gln Val Trp Phe 195 200 205
- Gln Asn Arg Arg Ala Lys Glu Lys Arg Leu Lys Lys Asp Ala Gly Arg 210 215 220
- Gln Arg Trp Gly Gln Tyr Phe Arg Asn Met Lys Arg Ala Arg Gly Gly
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- Ser Lys Ser Asp Lys Asp Ser Val Gln Glu Glu Glu Gln Asp Ser Asp 245 250 255
- Ala Glu Val Ser Phe Thr Asp Glu Pro Ser Met Ala Glu Met Gly Pro 260 265 270
- Ala Asn Gly Leu Tyr Gly Gly Leu Gly Glu Pro Ala Pro Ala Leu Gly
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- Arg Pro Ser Gly Ala Pro Gly Ser Phe Pro Leu Glu His Gly Gly Leu 290 295 300
- Ala Gly Pro Glu Gln Tyr Gly Glu Leu Arg Pro Ser Ser Pro Tyr Gly 305 310 315 320
- Val Pro Ser Ser Pro Ala Ala Leu Gln Ser Leu Pro Gly Pro Gln Pro 325 330 335
- Leu Leu Ser Ser Leu Val Tyr Pro Glu Ala Gly Leu Gly Leu Val Pro 340 345 350
- Ala Gly Pro Pro Gly Gly Pro Pro Pro Met Arg Val Leu Ala Gly Asn 355 360 365
- Gly Pro Ser Ser Asp Leu Ser Thr Gly Ser Ser Gly Gly Tyr Pro Asp 370 375 380
- Phe Pro Ala Ser Pro Ala Ser Trp Leu Asp Glu Val Asp His Ala Gln 385 390 395 400

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                             40
Leu Lys Ala Leu Asp Arg His Trp His Ser Lys Cys Leu Lys Cys Ser
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                         55
Asp Cys His Thr Pro Leu Ala Glu Arg Cys Phe Ser Arg Gly Glu Ser
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Ala Cys Gln Leu Gly Ile Pro Pro Thr Gln Val Val Arg Arg Ala Gln
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Asp Phe Val Tyr His Leu His Cys Phe Ala Cys Val Val Cys Lys Arg 115 120 125

Gln Leu Ala Thr Gly Asp Glu Phe Tyr Leu Met Glu Asp Ser Arg Leu 130 135 140

Val Cys Lys Ala Asp Tyr Glu Thr Ala Lys Gln Arg Glu Ala Glu Ala 145 150 155 160

Thr Ala Lys Arg Pro Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr
165 170 175

Leu Lys Ser Ala Tyr Asn Thr Ser Pro Lys Pro Ala Arg His Val Arg 180 185 190

Glu Gln Leu Ser Ser Glu Thr Gly Leu Asp Met Arg Val Val Gln Val
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Trp Phe Gln Asn Arg Arg Ala Lys Glu Lys Arg Leu Lys Lys Asp Ala 210 215 220

Gly Arg Gln Arg Trp Gly Gln Tyr Phe Arg Asn Met Lys Arg Ala Arg 225 230 235 240

Gly Gly Ser Lys Ser Asp Lys Asp Ser Val Gln Glu Glu Gly Gln Asp 245 250 255

Ser Asp Ala Glu Val Ser Phe Thr Asp Glu Pro Ser Met Ala Glu Met 260 265 270

Gly Pro Ala Asn Gly Leu Tyr Gly Gly Leu Gly Glu Pro Ala Pro Ala 275 _ 280 285

Leu Gly Arg Pro Ser Gly Ala Pro Gly Ser Phe Pro Leu Glu His Gly 290 295 300

Gly Leu Ala Gly Pro Glu Gln Tyr Gly Glu Leu Arg Pro Ser Ser Pro 305 310 315 320

Tyr Gly Val Pro Ser Ser Pro Ala Ala Leu Gln Ser Leu Pro Gly Pro 325 330 335

Gln Pro Leu Leu Ser Ser Leu Val Tyr Pro Glu Ala Gly Leu Gly Leu 340 345 350

Val Pro Ala Gly Pro Pro Gly Gly Pro Pro Pro Met Arg Val Leu Ala 355 360 365

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Pro Asp Phe Pro Ala Ser Pro Ala Ser Trp Leu Asp Glu Val Asp His 385 390 395 400

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Ile Leu Asp Arg Phe Ile Leu Lys Val Leu Glu Arg Thr Trp His Ala 50 55 60

Lys Cys Leu Gln Cys Ser Glu Cys His Gly Gln Leu Asn Asp Lys Cys 65 70 75 80

Phe Ala Arg Asn Gly Gln Leu Phe Cys Lys Glu Asp Phe Phe Lys Arg 85 90 95

Tyr Gly Thr Lys Cys Ser Ala Cys Asp Met Gly Ile Pro Pro Thr Gln 100 105 110

Val Val Arg Arg Ala Gln Asp Asn Val Tyr His Leu Gln Cys Phe Leu 115 120 125

Cys Ala Met Cys Ser Arg Thr Leu Asn Thr Gly Asp Glu Phe Tyr Leu

Met Glu Asp Arg Lys Leu Ile Cys Lys Arg Asp Tyr Glu Glu Ala Lys 145 150 155 160

Ala Lys Gly Leu Tyr Leu Asp Gly Ser Leu Asp Gly Asp Gln Pro Asn 165 170 175 Lys Arg Pro Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr Leu Lys
180 185 190

Thr Ala Tyr Asn Asn Ser Pro Lys Pro Ala Arg His Val Arg Glu Gln
195 200 205

Leu Ser Gln Asp Thr Gly Leu Asp Met Arg Val Val Gln Val Trp Phe 210 215 220

Gln Asn Arg Arg Ala Lys Glu Lys Arg Leu Lys Lys Asp Ala Gly Arg 225 230 235 240

Thr Arg Trp Ser Gln Tyr Phe Arg Ser Met Lys Gly Asn Cys Ser Pro 245 250 255

Arg Thr Asp Lys Phe Leu Asp Lys Asp Glu Leu Lys Val Asp Tyr Asp 260 265 270

Ser Phe Ser His His Asp Leu Ser Asn Asp Ser Tyr Ser Thr Val Asn 275 280 285

Leu Gly Leu Asp Glu Gly Ala Ser Pro His Ser Ile Arg Gly Ser Tyr 290 295 300

Met His Gly Ser Ser Ser Pro Ser Gln Tyr Pro Pro Ser Ser Arg Ser 305 310 315 320

Pro Pro Pro Val Gly Gln Gly His Thr Phe Gly Ser Tyr Pro Asp Asn 325 330 335

Ile Val Tyr Thr Asn Ile Asp Gln Ala Val Gly Ser Ser Leu His Ala 340 345 350

Ser Lys Ala His His Arg Leu His Ser Ser Asn Asn Val Ser Asp Leu 355 360 365

Ser Asn Asp Ser Ser Pro Asp Gln Gly Tyr Pro Asp Phe Pro Pro Ser 370 380

Pro Asp Ser Trp Leu Gly Asp Ser Gly Ser Thr Asn Thr Thr Ser Ala 385 390 395 400

Asn Asn Asn Ala Asn Asn Asn Ser Ser Arg Ser His Asn Asn Asn Asn Asn 405 410 415

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Gln Ser Pro Ser Ser Ile Ser Ser Leu Pro Ser His Ala Pro Leu Leu

290 295 300

Asn Gly Leu Asp Tyr Thr Val Asp Ser Asn Leu Gly Ile Ile Ala His 305 310 315 320

Ala Gly Gln Gly Val Ser Gln Thr Leu Arg Ala Met Ala Gly Gly Pro 325 330 335

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<213> Mus musculus

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Leu Lys Ala Leu Asp Arg His Trp His Ser Lys Cys Leu Lys Cys Ser 50 55 60

Asp Cys His Val Pro Leu Ala Glu Arg Cys Phe Ser Arg Gly Glu Ser 65 70 75 80

Val Tyr Cys Lys Asp Asp Phe Phe Lys Arg Phe Gly Thr Lys Cys Ala 85 90 95

Ala Cys Gln Leu Gly Ile Pro Pro Thr Gln Val Val Arg Arg Ala Gln
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Asp Phe Val Tyr His Leu His Cys Phe Ala Cys Val Val Cys Lys Arg 115 120 125

Gln Leu Ala Thr Gly Asp Glu Phe Tyr Leu Met Glu Asp Ser Arg Leu 130 135 140

Val Cys Lys Ala Asp Tyr Glu Thr Ala Lys Gln Arg Glu Ala Glu Ala 145 150 155 160

Thr Ala Lys Arg Pro Arg Thr Thr Ile Thr Ala Lys Gln Leu Glu Thr 165 170 175

Leu Lys Ser Ala Tyr Asn Thr Ser Pro Lys Pro Ala Arg His Val Arg 180 185 190

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<210> 36
<211> 20
<212> DNA
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<223> Description of Artificial Sequence: PCR primer
<400> 36
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atggaggcgc gcggggagct
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gcgaccgagc gaggcccggg gccgc
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cccggcccgg gagtcggcgg gaggc
<210> 40
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       ggcacgagcc ccgcacgacg
       <210> 42
       <211> 26
       <212> DNA
       <213> Artificial Sequence
       <223> Description of Artificial Sequence:alpha-GSU
              sequence
<400> 42
ij
                                                                             26
       gatccggtac ttagctaatt aaatga
ŧij.
Ш
Ш
       <210> 43
U
       <211> 26
m
       <212> DNA
       <213> Artificial Sequence
٠. أ
       <220>
       <223> Description of Artificial Sequence:Lhx3 consensus
(I)
             binding sequence
g ab
٦.
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gatcccagaa aattaattaa ttgtaa
                                                                             26
1 = 1
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       <213> Artificial Sequence
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       ggcacgagcc ccgcacgacg
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       <211> 20
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       <213> Artificial Sequence
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       <223> Description of Artificial Sequence: PCR primer
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| | <400> 45 | |
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| | tttgaagtct tggaaagtgc | 20 |
| | | |
| | 210 46 | |
| | <210> 46 <211> 21 | |
| | <211> 21 <212> DNA | |
| | | |
| | <213> Artificial Sequence | |
| | <220> | |
| | <223> Description of Artificial Sequence:PCR primer | |
| | value bedeription of interfectual bequence. Felt primer | |
| | <400> 46 | |
| | tgacctcgga ggagcgcgtc t | 21 |
| | | |
| | | |
| | <210> 47 | |
| | <211> 20 | |
| | <212> DNA | |
| | <213> Artificial Sequence | |
| <u>.</u> j | | |
| ā | <220> | |
| ñ | <223> Description of Artificial Sequence:PCR primer | |
| gleen groep group word march orden | | |
| 7# [] | <400> 47 | |
| 4 <i>3</i> . } | tcgtccttgc agtaaacgct | 20 |
| i <i>j</i> 51 | | |
| ļi, | -210: 40 | |
| 4 | <210> 48 | |
| | <211> 20 <212> DNA | |
|) () | | |
| Ü | <213> Artificial Sequence | |
| 2 2 | <220> | |
| 4 | <223> Description of Artificial Sequence: PCR primer | |
| | Tolon-principal odjacioovici princip | |
| z | <400> 48 | |
| | agcgtttact gcaaggacga | 20 |
| | | |
| | | |
| | <210> 49 | |
| | <211> 20 | |
| | <212> DNA | |
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| | | |
| | <220> | |
| | <223> Description of Artificial Sequence: PCR primer | |
| | 400. 40 | |
| | <400> 49 | |
| | cgcacttggt cccgaagcgc | 20 |
| | | |
| | <210> 50 | |
| | <211> 20 | |
| | <211> 20 <212> DNA | |
| | <213> Artificial Sequence | |
| | incitional ocquence | |

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<220>
       <223> Description of Artificial Sequence: PCR primer
       <400> 50
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       gcgcttcggg accaagtgcg
      · <210> 51
       <211> 21
       <212> DNA
       <213> Artificial Sequence
       <223> Description of Artificial Sequence: PCR primer
       <400> 51
                                                                            21
       cggggaagga gacctcagcg t
<210> 52
       <211> 19
Q.
       <212> DNA
Ü
       <213> Artificial Sequence
Ш
M
       <220>
Į.j
     <223> Description of Artificial Sequence: PCR primer
m
44
       <400> 52
       ggacaaggac agcgttcag
                                                                            19
#
C)
(I)
       <210> 53
ş.a.
       <211> 18
4-1
       <212> DNA
<213> Artificial Sequence
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       <223> Description of Artificial Sequence: PCR primer
       <400> 53
       ctcccgtaga ggccattg
                                                                            18
       <210> 54
       <211> 41
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       <213> Artificial Sequence
       <220>
       <223> Description of Artificial Sequence:PCR primer
       cgcaagcttc caccatgtgg gaggggggc cacaggagct g
                                                                            41
       <210> 55
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The state of the s
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<211> 33
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: PCR primer
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                                                                     33
cgggatccaa gcagcgagag gccgaggcca cgg
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<211> 75
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                                                                     75
cacaggagct gggag
<210> 57
<211> 21
<212> DNA
<213> Artificial Sequence
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<223> Description of Artificial Sequence: PCR primer
<400> 57
                                                                     21
caattaaccc tcactaaagg g
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<211> 31
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cggaattcat gaataatgat gatactaatt c
                                                                    31
<210> 59
<211> 34
<212> DNA
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<223> Description of Artificial Sequence: PCR primer
<400> 59
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| | <213> Artificial Sequence | |
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| | <220> | |
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| | <400> 69 | |
| | cggaattccg tcttctgctc cctggagctg tg | 32 |
| | | |
| | <210> 70 <211> 30 | |
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| | <212> DNA <213> Artificial Sequence | |
| | <220> | |
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| | <400> 70 | |
| | cggaattcta caacacctcg cccaagccgg | 30 |
| | | |
| ii. | <210> 71 | |
| | <211> 27 | |
| | <212> DNA | |
| 4 | <213> Artificial Sequence | |
| 1 | <220> | |
| is 'sea, sea and issue there there's 'sea' | <223> Description of Artificial Sequence: PCR primer | |
|] | <400> 71 | |
| i . - . | cggaattcgg aacgagggc ccttgac | 27 |
|) () | | |
| | <210> 72 | |
| | <211> 21 | |
| '- <u> </u> | <212> DNA | |
| | <213> Artificial Sequence | • |
| • | <220> | |
| | <223> Description of Artificial Sequence: PCR primer | |
| | <400> 72 | |
| | gatccaaaag gaaatgagag a | 21 |
| | | |
| | <210> 73 | |
| | <211> 25 | |
| | <212> DNA | |
| | <213> Artificial Sequence | |
| | <220> | |
| | <223> Description of Artificial Sequence: PCR primer | |
| | <400> 73 | ٠ |
| | cagtgcaggt ggtacacgaa gtcct | 25 |

| | <210> 74 | |
|-----------------|--|----|
| | <211> 25 | |
| | <212> DNA | |
| | <213> Artificial Sequence | |
| | <220> | |
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| | <400> 74 | |
| | cagtgcaggt ggtacacgaa gtcct | 25 |
| | <210> 75 | |
| | <211> 19 | |
| | <211> 19 <212> DNA | |
| | <213> Artificial Sequence | |
| | <220> | |
| | <223> Description of Artificial Sequence: PCR primer | |
| = 1 | <400> 75 | · |
| .[] | ggacaaggac agcgttcag | 19 |
| .) | | |
| | <210> 76 | |
| ₩ .i | <211> 18 | |
| Ä. | <212> DNA | |
| | <213> Artificial Sequence | |
| · a i | <220> | |
| _] | <223> Description of Artificial Sequence: PCR primer | |
| () | . <400> 76 | |
| | ctcccgtaga ggccattg | 18 |
| 7 | | 10 |
| : \$: \$ | <210> 77 | |
| | <211> 27 | |
| | <212> DNA | |
| | <213> Artificial Sequence | |
| | <220> | |
| | <223> Description of Artificial Sequence: Probe | |
| | <400> 77 | |
| | ttccccgatg agccttcctt ggcggaa | 27 |
| | -210. 70 | |
| | <210> 78 <211> 30 | |
| | | |
| | <212> DNA | |
| | <213> Artificial Sequence | |
| | <220> | |
| | <223> Description of Artificial Sequence: PCR primer | |
| | <400> 78 | |

| cggaa | attcta caacacctcg cccaagccgg | 30 |
|-------|--|----|
| <210> | > 79 | |
| <211> | | |
| <212> | | |
| <213> | > Artificial Sequence | |
| <220> | | |
| <223> | Description of Artificial Sequence: PCR primer | |
| <400> | 7 9 | |
| cggaa | attcgg aacgaggggc ccttgac | 27 |
| <210> | • 80 | |
| <211> | · 28 | |
| <212> | | |
| <213> | Artificial Sequence | |
| <220> | | |
| <223> | Description of Artificial Sequence: PCR primer | |
| <400> | . 80 | |
| cggga | tccga tcgcttcggc agcagctg | 28 |
| <210> | 81 | |
| <211> | | |
| <212> | DNA | |
| <213> | Artificial Sequence | |
| <220> | | |
| | Description of Artificial Sequence:PCR primer | |
| (2232 | bescription of Artificial Sequence. Tex primer | |
| <400> | 81 | |
| cggga | teett gatatttace eeggagge | 28 |
| <210> | 92 | |
| <210> | | |
| <211> | | |
| | Artificial Sequence | |
| <220> | | |
| | Description of Artificial Sequence: PCR primer | |
| <400> | 82 | |
| gcgaa | gcttg gaactgagcg tggtctacct ca | 32 |
| <210> | 83 | |
| <211> | | |
| <212> | | |
| | Artificial Sequence | |
| | | |

| | <220> | |
|--|--|----|
| | <223> Description of Artificial Sequence: PCR primer | |
| | <400> 83 | |
| | tacaagette gegatgetge tggaaaegg | 29 |
| | | |
| | <210> 84 | |
| | <211> 29 | |
| | <212> DNA | |
| | <213> Artificial Sequence | |
| | <220> | |
| | <223> Description of Artificial Sequence: PCR primer | |
| | <400> 84 | |
| | tacaagetta eeatggagge gegegggga | 29 |
| | <210> 85 | |
| | <211> 29 | |
| ≈ € | <212> DNA | |
| 7.0 | <213> Artificial Sequence | |
| () M | V2137 ALCTITICIAL DEGLERACE | |
| 2# _ } | <220> | |
| geret gemek sonik manet, sonik Nasil Hall terif terefi mili | <223> Description of Artificial Sequence: PCR primer | |
| | <400> 85 | |
| 71 | cccggtacca actgagcgtg gtctacctc | 29 |
| 4] | | |
| =) | <210> 86 | |
| Ü | <211> 19 | |
| -i- | <212> DNA | |
| 4 | <213> Artificial Sequence | |
| 2 | <220> | |
| 22 | <223> Description of Artificial Sequence: PCR primer | |
| | <400> 86 | |
| | ggacaaggac agcgttcag | 19 |
| | <210> 87 | |
| | <210> 67 <211> 18 | |
| | <211> 16 <212> DNA | |
| | <213> Artificial Sequence | |
| | · <220> | |
| | <223> Description of Artificial Sequence: PCR primer | |
| | | |
| | <400> 87 | |
| | ctcccgtaga ggccattg | 18 |
| | 4210× 88 | |
| | <210> 88 <211> 28 | |
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| | <212> DNA | |
|--|--|----|
| | <213> Artificial Sequence | |
| | <220> | |
| | <223> Description of Artificial Sequence: PCR primer | |
| | <400> 88 | |
| | cgggatccat gctgctggaa acggggct | 28 |
| | | 20 |
| | <210> 89 | |
| | <211> 28 | |
| | <212> DNA | |
| | <213> Artificial Sequence | |
| | <220> | |
| | <223> Description of Artificial Sequence: PCR primer | |
| | <400> 89 | |
| 234 | cgggatccat ggaggcgcgc ggggagct | 28 |
| germe, germen germen orang arang arang germen germe | | |
| 71 | <210> 90 | |
| : 1 | <211> 28 | |
| :4 <i>3</i> *11 | <212> DNA | |
| 1) [] | <213> Artificial Sequence | |
| 71 | <220> | |
| 4. | <223> Description of Artificial Sequence: PCR primer | |
| = 1 | <400> 90 | |
| 7 | cggaattctc agaactgagc gtggtcta | 28 |
| =à | | |
| | <210> 91 | |
| - | <211> 20 | |
| =1 | <212> DNA | |
| | <213> Artificial Sequence | |
| | <220> | |
| | <223> Description of Artificial Sequence: PCR primer | |
| | <400> 91 | |
| | tggtcacagc ctgcacacat | 20 |
| | | |
| | <210> 92 | |
| | <211> 20 | |
| | <212> DNA | |
| | <213> Artificial Sequence | |
| | <220> | |
| | <223> Description of Artificial Sequence: PCR primer | |
| | <400> 92 | |
| | aaccactgga ttagtgactg | 20 |
| | | |

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<210> 93
        <211> 19
        <212> DNA
        <213> Artificial Sequence
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        <400> 93
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                                                                              19
        <210> 94
        <211> 20
        <212> DNA
        <213> Artificial Sequence
        <220>
        <223> Description of Artificial Sequence: PCR primer
        <400> 94
(1)
       tggtcacagc ctgcacacat
                                                                             20
1
ųj.
U
       <210> 95
ſij
       <211> 21
W
       <212> DNA
m
       <213> Artificial Sequence
٠,
       <223> Description of Artificial Sequence: PCR primer
[()
       <400> 95
l zh
       cagaaaatta attaattgta a
                                                                             21
4.5
[]
       <210> 96
       <211> 28
       <212> DNA
       <213> Artificial Sequence
       <223> Description of Artificial Sequence: PCR primer
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       cgggatccat gctgctggaa acggggct
                                                                             28
     · <210> 97
      <211> 28
      <212> DNA
      <213> Artificial Sequence
      <223> Description of Artificial Sequence: PCR primer
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| | <400> 97 | |
|--|--|----|
| | cggaattctc agaactgagc gtggtcta | 28 |
| | | |
| | <210> 98 | |
| | <211> 28 | |
| | <212> DNA | |
| | <213> Artificial Sequence | |
| | | |
| | <220> | |
| | <223> Description of Artificial Sequence: PCR primer | |
| | <400> 98 | |
| | cgggatccat ggaggcgcgc ggggagct | 28 |
| | | |
| | <210> 99 | |
| | <211> 28 | |
| | <212> DNA | |
| | <213> Artificial Sequence | |
| gent, gent, gent, gent, and, and, and, thus, thu | <220> | |
| IJ | <223> Description of Artificial Sequence: PCR primer | |
| i | <400> 99 | |
| ĺ | cggaattctc agaactgagc gtggtcta | 20 |
| 4. 4. | cygaacteec agaactgage geggeeta | 28 |
| ii Ii | | |
| -] | <210> 100 | |
| ' ‡ | <211> 28 | |
| == | <212> DNA | |
| | <213> Artificial Sequence | |
| 77 2 4 | <220> | |
| 3. | <223> Description of Artificial Sequence: PCR primer | |
| = 7 | bequence. Tex primer | |
| = 12 | <400> 100 | |
| | acattaggta cttagctaat taaatgtg | 28 |
| | | |
| | <210> 101 | |
| | <211> 28 | |
| | <212> DNA | |
| | <213> Artificial Sequence | |
| | <220> | |
| | <pre><223> Description of Artificial Sequence:PCR primer</pre> | |
| | bequence.tek primer | |
| | <400> 101 | |
| | cacatttaat tagctaagta cctaatgt | 28 |
| | | |
| | <210> 102 | |
| | <211> 192 | |
| | <212> DNA | |
| | <213> Homo sapiens | |

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(i)
١Ð,
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#
(i)
ļ-i
4
1-5
```

```
<400> 102
 tetteeggga gaggeeect ceteteeca gaccaeaggg ggeetetetg cetecageec 60
 caccttcccc gggagaagct ttccccaatc cccaggtctc tagatcattc tgttctcgag 120
 tatcctgtgg aggaggcaaa aatgcctggc gcccttctc tccaagctca attctctaag 180
 ccctcaggg tc
 <210> 103
 <211> 21
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence: PCR primer
 <400> 103
 caaccgctgt cccgcactct t
                                                                     21
 <210> 104
 <211> 21
 <212> DNA
 <213> Artificial Sequence
<223> Description of Artificial Sequence:PCR primer
<400> 104
gaaagttcgg gactggagag t
                                                                    21
<210> 105
<211> 20
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<213> Artificial Sequence
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<400> 105
cagtgccaca acctcactca
                                                                    20
<210> 106
<211> 20
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<223> Description of Artificial Sequence: PCR primer
<400> 106
tacgaggtga cccagaactt
                                                                   20
<210> 107
<211> 20
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<212> DNA
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        <223> Description of Artificial Sequence:PCR primer
        <400> 107
        cctggccttg gtgattgtga
                                                                             20
        <210> 108
        <211> 20
        <212> DNA
        <213> Artificial Sequence
        <223> Description of Artificial Sequence:PCR primer
        <400> 108
        tttcagacca ggaaaggtgg
                                                                             20
(;)
        <210> 109
Ų)
        <211> 20
ŧij.
        <212> DNA
[i]
        <213> Artificial Sequence
M
u
       <220>
Ü
       <223> Description of Artificial Sequence:PCR primer
7.4
       <400> 109
       cgaaatgagc ctcgcgcttc
                                                                             20
Ü
-
       <210> 110
4
       <211> 19
       <212> DNA
1=1
       <213> Artificial Sequence
       <223> Description of Artificial Sequence: PCR primer
       <400> 110
       gctgccgcgc ctcaccgct
                                                                             19
       <210> 111
       <211> 20
       <212> DNA
       <213> Artificial Sequence
       <220>
       <223> Description of Artificial Sequence: PCR primer
       <400> 111
       aggagtccac taactccatg
                                                                            20
```

